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SEQUENCE LISTING

Su
aq

<110> Miyawaki, Atsushi
Sawano, Asako

<120> METHOD FOR MUTAGENESIS

<130> 11283-012001

<140> 09/920,922
<141> 2001-08-02

<150> JP 2000-237166

<151> 2000-08-04

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<170> FastSEQ for Windows Version 4.0

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<212> DNA
<213> Aequorea victoria

<220>
<221> CDS
<222> (1)...(717)

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Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
1 5 10 15

gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc 96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
20 25 30

gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc 144
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
35 40 45

tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc 192
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
50 55 60

ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag 240
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
65 70 75 80

cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag 288
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
85 90 95

cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag 336
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu

100	105	110	
gtg aag ttc gag ggc gac acc ctg	gtg aac cgc atc gag ctg	aag ggc	384
Val Lys Phe Glu Gly Asp Thr	Leu Val Asn Arg Ile	Glu Leu Lys Gly	
115	120	125	
atc gac ttc aag gag gac ggc aac atc	ctg ggg cac aag ctg gag tac		432
Ile Asp Phe Lys Glu Asp Gly Asn	Ile Leu Gly His Lys Leu Glu Tyr		
130	135	140	
aac tac aac agc cac aac gtc tat atc atg	gcc gac aag cag aag aac		480
Asn Tyr Asn Ser His Asn Val Tyr	Ile Met Ala Asp Lys Gln Lys Asn		
145	150	155	160
ggc atc aag gtg aac ttc aag atc cgc cac aac atc	gag gac ggc agc		528
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile	Glu Asp Gly Ser		
165	170	175	
gtg cag ctc gcc gac cac tac cag cag aac acc ccc	atc ggc gac ggc		576
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr	Pro Ile Gly Asp Gly		
180	185	190	
ccc gtg ctg ctg ccc gac aac cac tac ctg	agc acc cag tcc gcc ctg		624
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr	Gln Ser Ala Leu		
195	200	205	
agc aaa gac ccc aac gag aag cgc gat cac atg	gtc ctg ctg gag ttc		672
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val	Leu Leu Glu Phe		
210	215	220	
gtg acc gcc gcc ggg atc act ctc ggc atg gac	gag ctg tac aag		717
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp	Glu Leu Tyr Lys		
225	230	235	
taa			720
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<211> 239			
<212> PRT			
<213> Aequorea victoria			
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Val Glu Leu Asp Gly Asp Val Asn Gly	His Lys Phe Ser Val	Ser Gly	
20	25	30	
Glu Gly Glu Gly Asp Ala Thr	Tyr Gly Lys Leu Thr	Leu Lys Phe Ile	
35	40	45	
Cys Thr Thr Gly Lys Leu Pro Val	Pro Trp Pro Thr	Leu Val Thr Thr	
50	55	60	
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg	Tyr Pro Asp His	Met Lys	
65	70	75	80
Gln His Asp Phe Phe Lys Ser Ala Met	Pro Glu Gly Tyr Val	Gln Glu	
85	90	95	
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn	Tyr Lys Thr Arg	Ala Glu	
100	105	110	
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg	Ile Glu Leu Lys	Gly	

115	120	125													
Ile	Asp	Phe	Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr
130						135						140			
Asn	Tyr	Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn
145						150					155				160
Gly	Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser
						165				170				175	
Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp	Gly
						180			185				190		
Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Thr	Gln	Ser	Ala	Leu
						195			200				205		
Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu	Leu	Glu	Phe
						210			215				220		
Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu	Leu	Tyr	Lys	
225						230					235				

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<220>
<221> CDS
<222> (1) ... (714)

<400> 3
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Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
1 5 10 15

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gaa tta gat ggt gat gtt aat ggg cac aaa ttt tct gtc agt gga gag 96
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
          20           25           30

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ggt gaa ggt gat gca aca tac gga aaa ctt acc ctt aaa ttt att tgc 144
 Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
 35 40 45

act act gga aaa cta cct gtt cca tgg cca aca ctt gtc act act act ttc
 Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
 50 55 60

tct tat ggt gtt caa tgc ttt tca aga tac cca gat cat atg aaa cag	240
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln	
65 70 75 80	

cat gac ttt ttc aag agt gcc atg ccc gaa ggt tat gta cag gaa aga 288
 His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
 85 90 95

act ata ttt ttc aaa gat gac ggg aac tac aag aca cgt gct gaa gtc 336
 Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
 100 105 110

aag ttt gaa ggt gat acc ctt gtt aat aga atc gag tta aaa ggt att 384
 Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
 115 120 125

gat ttt aaa gaa gat gga aac att ctt gga cac aaa ttg gaa tac aac		432	
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn			
130	135	140	
tat aac tca cac aat gta tac atc atg gca gac aaa caa aag aat gga		480	
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly			
145	150	155	160
atc aaa gtt aac ttc aaa att aga cac aac att' gaa gat gga agc gtt		528	
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val			
165	170	175	
caa cta gca gac cat tat caa caa aat act cca att ggc gat ggc cct		576	
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro			
180	185	190	
gtc ctt tta cca gac aac cat tac ctg tcc aca caa tct gcc ctt tcg		624	
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser			
195	200	205	
aaa gat ccc aac gaa aag aga gac cac atg gtc ctt ctt gag ttt gta		672	
Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val			
210	215	220	
aca gct gct ggg att aca cat ggc atg gat gaa cta tac aaa		714	
Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys			
225	230	235	
taa		717	
<210> 4			
<211> 238			
<212> PRT			
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<400> 4			
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Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu			
20	25	30	
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys			
35	40	45	
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe			
50	55	60	
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln			
65	70	75	80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg			
85	90	95	
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val			
100	105	110	
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile			
115	120	125	
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn			
130	135	140	
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly			
145	150	155	160

Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
 165 170 175
 Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
 180 185 190
 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
 195 200 205
 Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
 210 215 220
 Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
 225 230 235

<210> 5
 <211> 27
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 <213> Artificial Sequence

<220>
 <223> Synthetically generated primer

<400> 5
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<210> 6
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetically generated primer

<400> 6
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<210> 7
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
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<221> misc_feature
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<400> 7
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<210> 8
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 <213> Aequorea victoria

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20	25	30													
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35															
Cys	Thr	Thr	Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr
50															
Leu	Thr	Trp	Gly	Val	Gln	Cys	Phe	Ser	Arg	Tyr	Pro	Asp	His	Met	Lys
65															
Gln	His	Asp	Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu
85															
Arg	Thr	Ile	Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu
100															
Val	Lys	Phe	Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly
115															
Ile	Asp	Phe	Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr
130															
Asn	Tyr	Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn
145															
Gly	Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser
165															
Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp	Gly
180															
Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Tyr	Gln	Ser	Ala	Leu
195															
Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu	Leu	Glu	Phe
210															
Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu	Leu	Tyr	Lys	
225															
230															
235															

<210> 9

<211> 239

<212> PRT

<213> Aequorea victoria

<400> 9

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20															
Glu	Gly	Gly	Asp	Ala	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	
35															
Cys	Thr	Thr	Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr
50															
Leu	Thr	Trp	Gly	Val	Gln	Cys	Phe	Ser	Arg	Tyr	Pro	Asp	His	Met	Lys
65															
Gln	His	Asp	Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu
85															
Arg	Thr	Ile	Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu
100															
Val	Lys	Phe	Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly
115															
Ile	Asp	Phe	Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr
130															
Asn	Tyr	Ile	Ser	His	Asn	Val	Tyr	Ile	Asp	Lys	Gln	Lys	Asn		
145															
Gly	Ile	Lys	Ala	His	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser
165															
Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp	Gly

180	185	190
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu		
195	200	205
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe		
210	215	220
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys		
225	230	235